

casions. For the September equinox the agreement was 181 out of 360. The southeast and northwest winds in this region of the continent are by far the most frequent of all that occur, but the preceding figures show that the equinox does not appreciably control the wind.—ED.

CLIMATE AND CROP SERVICE PUBLICATIONS.

By JAMES BERRY, Chief of Climate and Crop Division.

Soon after the present Chief of the Weather Bureau assumed charge of the service he set about to accomplish what had long been considered most desirable and important in connection with the publication of the climatological data collected through the various State weather services in cooperation with the National Weather Bureau, viz, the issue of the monthly reports in a uniform style after an approved pattern. The monthly reports of the various State weather services up to 1896 were printed by the stencil plate and milligraph process. They were inelegant in appearance, of various forms and sizes, lacked agreement in arrangement and character of the data, and in only one or two cases contained graphic illustrations of meteorological conditions.

In January, 1896, the Chief of Bureau, desiring to emphasize the distinction between the terms climate and weather, as also the fact that the Weather Bureau and not the respective States was responsible for the work, announced in official instructions that the division formerly entitled State Weather Service, having charge of the local services, should be designated the Climate and Crop Division, and that each local service should be known as a State Section of the Climate and Crop Service of the Weather Bureau. Careful attention was devoted to the matter of designing a model form of publication for all sections, and the one adopted was of the size of the general MONTHLY WEATHER REVIEW. It provided for tables containing current means and normals of temperature and precipitation, extremes of temperature, altitude of stations, daily readings of maximum and minimum thermometers and daily precipitation for all stations, charts of temperature and precipitation, and several pages devoted to a general discussion of the various meteorological elements and miscellaneous weather phenomena.

The first report according to the new model was that for February, 1896, for the New England section, issued at Boston. Pennsylvania followed in the succeeding month, and as quickly as possible other section reports were issued after the adopted standard. Many difficulties lay in the way of making the section reports uniform, even where the necessary means for printing were available, as several States had by legislative enactment provided for the printing of the reports of State Weather Services, and the State directors were not all disposed to depart from the form in which their previous reports had been issued. By the close of 1897, however, nearly one-half of the sections had adopted the new model, and by October, 1898, all were issuing reports uniform in size, while the arrangement of data was identical in all but two, these exceptions being New York and Iowa, the reports of which, although differing slightly in minor details, contained the same information.

At the present time the Climate and Crop Service of the Weather Bureau is divided into 42 sections, independent of those for Porto Rico and Cuba. Therefore, 42 quarto publications are issued every month, containing accurate and detailed reports of observations made daily throughout the year at more than 3,000 voluntary stations. Not only has the form of the publication been standardized, but the instrumental equipment of the voluntary observers and the exposure of the instruments have received most careful attention. Nearly

all voluntary observers are now supplied with instruments of the most approved pattern, and during the past two years a large proportion have been supplied with approved thermometer shelters.

The monthly editions of the section reports for the various States range from 300 to 3,000 copies. These are distributed to cooperating observers, scientific institutions, libraries and newspapers, each section center receiving and carefully preserving the reports for all other sections.

A file of these reports supplies a vast fund of meteorological information for the purposes of study and investigation.

The work of establishing Climate and Crop Sections in Porto Rico and Cuba is well advanced, an ample number of instruments to equip a complete system of stations having been sent into these islands. About 30 stations have already been established in Porto Rico, where the issue of weekly Climate and Crop Bulletins was begun in January of this year. At an early date the monthly report of the Porto Rico section in the standard form is expected. In Cuba the conditions have been less favorable for this work, but much progress has been made, and no doubt before the close of the year both weekly and monthly reports after the standard type will be issued for that island also.

RECENT PAPERS BEARING ON METEOROLOGY.

W. F. R. PHILLIPS, in charge of Library, etc.

The subjoined list of titles has been selected from the contents of the periodicals and serials recently received in the library of the Weather Bureau. The titles selected are of papers or other communications bearing on meteorology or cognate branches of science. This is not a complete index of the meteorological contents of all the journals from which it has been compiled; it shows only the articles that appear to the compiler likely to be of particular interest in connection with the work of the Weather Bureau:

Meteorologische Zeitschrift, Wien, Band 16.

Satke, L. Fünfjährige Beobachtungen der Temperatur der Schneedecke in Tarnopol. P. 97.

Westman, J. Täglicher Gang der resultirenden Luftströmung an der Erdoberfläche zu Upsala 1891-1895. P. 107.

Maurer, J. Einige Ergebnisse der sechsten internationalen Ballonfahrt am 3 Oktober, 1898. P. 110.

Bezold, W. v. Bemerkungen zu der Abhandlung des Herrn. "Ueber Spät- und Frühfröste." P. 114.

Supper, K. Resultat der meteorologischen Beobachtungen in der Republik Guatemala im Jahre 1897. P. 117.

Tippenhauer, G. Ueber die Ursache der doppelten täglichen Oscillation des Barometers. P. 120.

— Ergebnisse der meteorologischen Beobachtungen auf dem Mont Ventoux im Jahre 1897. P. 123.

— Resultate der meteorologischen Beobachtungen in Buëa am Kamerun-Gebirge. P. 123.

Davis, W. M. "Helm Wind" Beobachtet in den Cevennen. P. 124.

Madsen, C. L. Ein Beitrag zur Erklärung von abnormalen Temperaturverhältnissen im nördlichen Europa. P. 125.

— Blitzschäden im Jahr 1897 in Steiermark, Kärnten und Oberkrain. P. 128.

Prohaska, K. Ueber die Fortpflanzungsgeschwindigkeit der Gewitter in Steiermark, Kärnten und Oberkrain. P. 129.

Hegyfoky, J. Bemerkung zu dem Referate "Hegyfoky, J., Wasserstand der Flüsse und Niederschlag in Ungarn." P. 130.

Hann, J. Der Charakter der Winter der letzten 70 Jahre in Wien. P. 132.

— Temperatur und Luftdruck-Mittel für Tokio. P. 134.

— Täglicher Gang des Barometers zu Sao Paulo. P. 136.

Harrington, M. W. Mittlerer Regenfall in San Juan de Porto Rico. P. 135.

— Meteorologisches aus Bolivien. P. 136.

Fischer, F. Erwiderung. P. 131.

Sitzungsberichte der k. p. Akad. der Wiss. zu Berlin. 1899.

Ludeling, G. Ueber den täglichen Gang der erdmagnetischen Störungen an Polarstation. P. 236.